

What is claimed is:

- Surf 2* 1. An ultrasound diagnostic apparatus comprising:
a) scanning means for repeatedly scanning a cross
section of an examining human body implanted bubbles as
5 ultrasonic shadowing agent with an ultrasound to collect
an echo signal;
image data obtaining means for repeatedly
obtaining image data based on said echo signal;
displaying means for displaying said obtained
10 image data as a motion image; and
changing means for changing power of said
ultrasound from first power to second power stronger
than said first power.
2. The apparatus according to claim 1, wherein
15 said power is sound pressure.

3. The apparatus according to claim 1, wherein
said scanning means includes a piezoelectric element
group and voltage generating means for variably
generating a voltage for driving said piezoelectric
20 element group, and said changing means changes the
voltage generated by said voltage generating means from
a first voltage corresponding to said first power to a
second voltage corresponding to said second power and
being higher than said first voltage.

25 4. The apparatus according to claim 1, wherein
said image data obtain means includes means for storing
image data first obtained after said power of the

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ultrasound is changed from said first power to said second power.

5. The apparatus according to claim 1, wherein said displaying means includes means for displaying image data first obtained after said power of the ultrasound is changed from said first power to said second power as a static image.

10. The apparatus according to claim 1, further comprising inputting means for manually designating a change of power from said first power to said second power.

15. The apparatus according to claim 1, wherein said changing means includes means for returning power of said ultrasound to said first power after the scanning is continued for a predetermined period of time by said second power.

20. The apparatus according to claim 1, wherein said image data obtaining means includes means for subtracting image data, first obtained after said power of the ultrasound is changed from said first power to said second power, and image data, nth obtained after said power of the ultrasound is changed from said first power to said second power, from each other between frames.

25. *and a 3>* The apparatus according to claim 1, wherein said scanning means includes means for repeating a receiving and transmitting operation twice in

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connection with each of said ultrasonic scanning lines, and means for subtracting the echo signal obtained by the first receiving and transmitting operation and the echo signal obtained by the second receiving and 5 transmitting operation from each other, and said image data obtaining means obtains image data based on said subtracted echo signal.

10. The apparatus according to claim 1, wherein said scanning means includes means for extracting a 10 high frequency component from said echo signal, and said image data obtaining means obtains image data based on said high frequency component.

11. The apparatus according to claim 1, wherein said displaying means includes means for displaying a 15 power state of said ultrasound.

12. The apparatus according to claim 1, wherein said image obtaining means includes means for obtaining a time density curve of a pixel value of said image data.

20 13. The apparatus according to claim 1, wherein said scanning means includes first means for generating the ultrasound by said first power, and second means for generating the ultrasound by said second power.

Ans A4 25 14. An ultrasound diagnostic apparatus comprising: scanning means for repeatedly scanning a cross section of an examining human body implanted bubbles as ultrasonic shadowing agent with an ultrasound to repeat

an echo signal;

image obtaining means for repeatedly obtaining
image data based on said echo signal;

5 displaying means for displaying said generated
image data as a motion image; and

changing means for changing a frequency of said
ultrasound from a first frequency to a second
frequency.

15. The apparatus according to claim 14, wherein
10 said image obtaining means includes means for storing
image data first obtained after said frequency of the
ultrasound is changed from said first frequency to said
second frequency.

16. The apparatus according to claim 14, wherein
15 said displaying means includes means for displaying
image data first obtained after said frequency of the
ultrasound is changed from said first frequency to said
second frequency as a static image.

20. The apparatus according to claim 14, further
comprising inputting means for manually designating a
change of the frequency from said first frequency to
said second frequency.

25. The apparatus according to claim 14, wherein
said changing means includes means for returning the
frequency of said ultrasound to said first frequency
after the scanning is continued for a predetermined
period of time by said second frequency.

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19. The apparatus according to claim 14, wherein
said image obtaining means includes means for
subtracting image data, first obtained after said
frequency of the ultrasound is changed from said first
frequency to said second frequency, and image data, ^{subsequently} ~~nth~~,
obtained after said frequency of the ultrasound is
changed from said first frequency to said second
frequency, from each other between frames.

~~20. As >~~ 20. The apparatus according to claim 14, wherein
said scanning means includes means for repeating a
receiving and transmitting operation twice in
connection with each of said ultrasonic scanning lines,
and means for subtracting the echo signal obtained by
the first receiving and transmitting operation and the
echo signal obtained by the second receiving and
transmitting operation from each other, and said image
generating means generates image data based on said
subtracted echo signal.

21. The apparatus according to claim 14, wherein
said scanning means includes means for extracting a
high frequency component from said echo signal, and
said image data obtaining means obtains image data
based on said high frequency component.

22. The apparatus according to claim 14, wherein
said displaying means includes means for displaying a
frequency state of said ultrasound.

23. The apparatus according to claim 14, wherein

said image obtaining means includes means for obtaining a time density curve of a pixel value of said image data.

Ans b 24. An ultrasound imaging method, which repeatedly scans a cross section of an examining human body implanted bubbles as ultrasonic shadowing agent with an ultrasound to obtain an echo signal, repeatedly obtains image data based on said echo signal, and displays said image data as a motion image, comprising:

10 a first step of scanning said ultrasound by first power; and

a second step of scanning said ultrasound by second power stronger than said first power after scanning said ultrasound by said first power.

15 25. The method according to claim 24, wherein said power is sound pressure.

26. The method according to claim 25, further comprising a third step of returning power of said ultrasound to said first power after the scanning is continued for a predetermined period of time by said 20 second power.

Ans a 1 27. An ultrasound imaging method, which repeatedly transmits an ultrasound to an examining human body implanted bubbles as ultrasonic shadowing agent, receives a reflected wave from said examining human 25 body to repeatedly obtain an echo signal of a cross section of said examining human body, repeatedly

obtains image data based on said echo signal, and displays said image data as a motion image, comprising:

a first step of scanning said ultrasound by a first frequency; and

5 a second step of scanning said ultrasound by a second frequency after scanning said ultrasound by said first frequency.

28. The method according to claim 27, further comprising a third step of returning the frequency of 10 said ultrasound to said first frequency after the scanning is continued for a predetermined period of time by said second frequency.

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